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URR, weight, and mortality

To the Editor: In a recent paper that examined the basis for the paradoxical increase in mortality seen in patients who receive the highest urea reduction ratios (URRs), Chertow et al [1] cited a 1998 study by McClellan et al [2] as their source for the observation of a J-curve relationship between the urea ratio and mortality, and then demonstrated the probable explanation for the paradox is that body size (total body water) confounds URR so that patients with the least muscle mass—who are at highest risk—happen to receive the highest URRs. They also consider in their discussion alternative explanations for the J-curve, such as selection bias, and the detrimental effect of overdialysis. Since replication is an important aspect of scientific evidence, I would like to point out that the authors may have overlooked a 1993 paper in which my colleagues and I first reported the J-curve for the urea ratio versus mortality, and provided evidence for the exact same explanation (that body size confounds dialysis dose), and discussed the same alternative explanations [3].

Chertow et al also clarified that the reason for the surprising inability to demonstrate a linear correlation between serum albumin concentration and the urea ratio is that the relationship is, in fact, nonlinear (inverted U-shaped). In support of this finding, the same relationship was detected on reexamining the data from our original study. When the correlation of albumin versus URR was tested within each of the four URR subgroups we used (<47.4%, 47.4–59.9%, 60%–70.5%, >70.5%), the correlation coefficients were: 0.28, 0.003, −0.017, and −0.37, respectively, suggesting an overall inverted U-shaped relationship.

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Reply from the authors

We apologize for the omission of Dr. Goldwasser's work in our literature review, and are pleased that it confirmed the curvilinear relation we described between serum albumin and URR.

Glenn M. Chertow
for the authors

Catecholamines and transplantation

To the Editor: In their retrospective analysis of donor factors affecting cadaveric renal allograft outcome, Schnuelle et al conclude that "the treatment of brain-dead organ donors with catecholamines is associated with less rejection of kidneys transplanted from these donors" [1]. There are several important issues, however, raised by the methodology of the study.

How much inter-physician variability existed in the prescription of catecholamines, choice of catecholamine and dosage? Were catecholamines withheld from some hypotensive donors, thereby causing acute tubular necrosis, delayed graft function, and adverse outcome, biasing the results in favor of catecholamine use? Were catecholamines administered to some non-hypotensive donors?

The fact that the blood pressure was similar in the two groups suggests that the blood pressure measurement used in the analysis was recorded after the donor was established on catecholamine treatment. The degree and duration of hypotension before catecholamine administration is essential information omitted from the analysis.

Eighteen variables were analyzed to detect independent associations in 67 patients experiencing the outcome of acute rejection. This raises the distinct possibility of statistical overfitting of the multivariate model, since the ratio of independent variables to outcome cases is greater than 1:5 [2]. Could this therefore be nothing more than chance association?

These issues are important because there are sound physiological reasons to believe that catecholamine use in the donor may be associated with poorer graft outcome. If catecholamines were used uniformly in donors, then donors with hemodynamic compromise would be